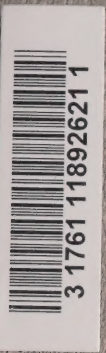
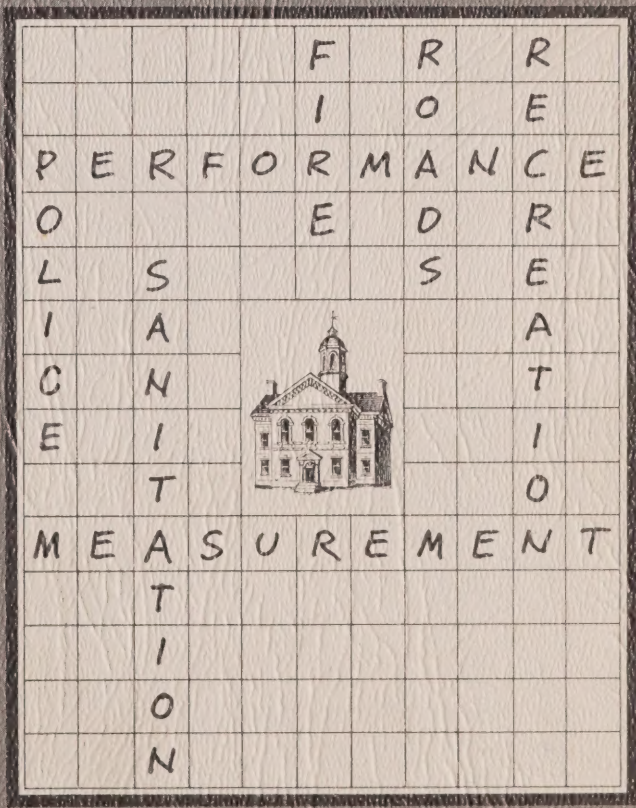


Copyright
2000



PERFORMANCE MEASUREMENT

for
municipalities



Copies available from:

Ontario Government Bookstore
880 Bay Street
Toronto, Ontario

Or by mail, prepaid, from:

Publications Centre
880 Bay Street, 5th Floor
Toronto, Ontario
M7A 1N8

Price: \$5.00

ISBN-0-7743-6578-1

PERFORMANCE MEASUREMENT for municipalities



Ontario

Ministry of
Municipal Affairs
and Housing

Hon. Claude F. Bennett
Minister

R.M. Dillon
Deputy Minister

Municipal Budgets and Accounts Branch
Municipal Operations Division
September, 1981





Digitized by the Internet Archive
in 2024 with funding from
University of Toronto

<https://archive.org/details/31761118926211>

PERFORMANCE MEASUREMENT FOR MUNICIPALITIES

Summary

The current economic climate is having a dramatic impact on all municipal governments. Demands for services and their costs are increasing at a faster rate than the growth in assessment and transfer payments from senior levels of government. Some municipalities are rising to the challenge by adopting new management systems and budgeting techniques with a view to increasing productivity in the provision of municipal services and to allocating limited resources for maximum benefits. The magnitude of municipal expenditures makes any such attempt worthwhile. For example, if all municipalities in Ontario were to improve productivity by five per cent, an annual benefit of over 225 million dollars would be realized.

The most progressive municipalities are now recognizing that an essential ingredient in an improved management system is a factual evaluation of efficiency and effectiveness in the services provided. Performance measurement fills this need. Municipalities are now being challenged to justify every dollar spent. The critical data that flows from good performance measurement will facilitate an assessment of the decisions taken and a critical evaluation of the operations that follow from those decisions.

This publication first discusses in Chapter I performance measurement in the context of efficiency and effectiveness, and how it can assist elected officials in making essential strategic policy decisions, and aid appointed officials in making the tactical operational decisions to implement those policies. Performance measurement is therefore a tool to assist good decision-making by managers at all levels.

Approaches to developing a set of performance measurements are outlined in Chapter II and criteria for selection of measurements are set out.

Chapter III is the key chapter and describes how a municipal performance measurement program can be organized and implemented. The elements are:

1. Top management approval and commitment.
2. Establishment of a central implementation authority.
3. Creation of a project team.
4. Selection of the services to be addressed.
5. Orientation of all participants.
6. Establishment of an implementation plan.

Chapter IV discusses in depth the critical process of collection and use of performance data.

Chapter V presents examples of specific performance measurements relating to five municipal services: garbage collection, fire, police, inspections and road maintenance.

Performance measurement is not just a theoretical idea. It has been implemented in some United States municipalities and Chapter VI describes the experiences of Sunnyvale, California and Dayton, Ohio. The City of Thunder Bay, Ontario is moving to the adoption of performance measurement as is the Regional Municipality of Ottawa-Carleton; their experiences are described, and the Performance Measurement Manual and Catalogue prepared by the City of Thunder Bay accompanies this publication.

In conclusion, Chapter VII indicates that it is likely that the current cost/revenue squeeze being experienced by all governments in Ontario will, in due course, force all municipalities to adopt some form of performance evaluation. We hope this publication will provide a good basis to facilitate this, with a resultant improvement in municipal productivity.

CONTENTS

Page

	Summary	(i)
	Contents	(iii)
I	Introduction	1
II	Developing a Set of Performance Measurements	4
	A. Effectiveness and Efficiency in the Municipal Context	
	i) Effectiveness	
	ii) Efficiency	
	a) Inputs	
	b) Outputs	
	B. The Selection Process	
	i) Criteria for Measurement Selection	
	ii) Sequential and Concurrent Selection of Goals, Objectives and Measurements	
III	Organizing a Performance Measurement Program	10
	A. Obtain Approval in Principle	
	B. Designate Central Implementation Authority	
	C. Create Project Team	
	D. Select Critical Services	
	E. Orientate Participants	
	F. Establish Detailed Implementation Plan	
IV	Collecting and Using Performance Data	15
	A. Data Collection Techniques	
	i) Data Collection by Operational Personnel	
	ii) Trained Observer Ratings	
	iii) Citizen/Client Surveys	
	B. Using Performance Data	

	<u>Page</u>
V Examples of Performance Measurements	22
A. Garbage and Rubbish Collection	
B. Fire Fighting	
C. Criminal Investigation and Apprehension	
D. Building and Plumbing Inspections	
E. Loose-Top Road Maintenance	
 VI Performance Measurement in Four Municipalities	 27
A. Sunnyvale, California	
B. Dayton, Ohio	
C. Thunder Bay, Ontario	
D. Ottawa-Carleton, Ontario	
 VII Conclusion	 34
 Selected Bibliography	 35

I. INTRODUCTION

This publication is about performance measurement in municipalities. Within the context of municipal government, performance measurement can be defined as the quantitative determination of the effectiveness and efficiency of municipal services.

Every organization exists for a purpose which is articulated through the organization's goals and objectives. The extent to which the organization achieves those goals and objectives determines its effectiveness.

Efficiency refers to the relationship between inputs and outputs, that is, between the amount of resources used and the amount of product or service produced. An organization is said to be efficient if, for a given amount of product or service, it minimizes the resources it uses to achieve that output.

The concepts of effectiveness and efficiency are broad in scope. They are applicable to all organizations whether public or private, large or small. They apply to the entire organization and they apply to the departments or sub-units of the organization. They can have a short-term or long-term focus and they can apply to the performance of any task whether productive or administrative.

Implicit in the definitions of effectiveness and efficiency is the notion of quantification. Any decision or evaluation regarding a municipal service will be influenced by both subjective judgements and objective documentation. In the political environment of municipal government subjective judgements are indispensable. But any decision or evaluation is stronger when supported by factual evidence. Performance measurement is a means for improving decisions through a quantitative evaluation of effectiveness and efficiency.

Performance measurement of municipal services can be a valuable decision-making tool for elected and appointed officials alike. However, the information needs of the two groups, and therefore the measurements they use, may be different. For elected officials performance measurement can help them determine whether municipal services are effective in satisfying the demands of the public. It can also assist them in efficiently allocating scarce resources among services. For example, through a survey of citizen opinion, council may determine that citizens are satisfied with service A and service B, but dissatisfied with service C. Alerted to this, council can investigate methods of improving the effectiveness of service C. Moreover, that same citizen survey may reveal that the public ranks service C as more important than A or B. Council may therefore decide that a reallocation of funds to C is more efficient in raising the general level of citizen satisfaction.

Performance measurement can assist councillors in making strategic policy decisions; it can also help appointed officials in making tactical operating decisions. It can indicate whether service delivery is effective in terms of the workload undertaken. For example, a council may set as one of the municipality's goals a 10% reduction in crimes committed. The police chief will develop an array of objectives designed to meet this goal. One of these objectives may be to clear 58% of reported crimes by means

of arrest, on the theory that the incarceration of criminals prevents them from committing more crimes, at least during their imprisonment. Thus, the police chief would deem his operation to be effective if the crime clearance rate via arrest was 58% or greater. He would also wish to exert control over the quality of arrest to ensure that the arrest did indeed contribute to the criminal's incarceration and that the simple clearance rate measure did not lead to a perverse incentive for officers to make questionable arrests merely to increase the clearance rate. Thus, the police chief might only count as crimes cleared by arrest, those arrests that resulted in conviction. Efficiency could be measured by dividing the dollar cost or number of man-hours by the number of arrests or the number of crimes investigated. Of course, extraordinary circumstances could arise which might distort performance measurements. For example, the apprehension of an extremely dangerous criminal could require a great deal of time and resources. The measurements suggested here are meant to apply to normal operations.

To use a further example, council may state that one of the municipality's goals is to provide, 99.9% of the time, a continuous and adequate supply of potable water which conforms to legislated quality guidelines. Councils may have neither the time nor the expertise to evaluate performance against a large variety of flow and quality criteria. However, performance could be measured for the councils' purpose as the percent of days during the year that the stated goal was achieved. Appointed officials, on the other hand, would be interested in more technical and precise measurements such as the percent of water samples meeting bacterial, PH and other quality standards, and the percent of the time that water pressure standards were met.

The discussion and examples presented above are not meant to suggest that performance measurement is obvious or easy. Any experienced municipal official can see that it is not. Rather, the discussion and examples are only meant to indicate that a program of performance measurement of municipal services can be of value to both elected and appointed officials. The full value of such a program, especially for elected officials, would accrue if performance measurement were undertaken in all municipal services. But performance measurement can also be applied to any individual service. It may in fact be desirable to implement such a program on a service-by-service basis, attempting to measure the day-to-day operations of services first and embarking on a fully integrated program only after appointed officials have mastered performance measurement for operating purposes. More extensive discussions of the selection of performance measurements, the techniques of data collection and the uses of performance information are presented later in this publication.

Both elected and appointed municipal officials must bear in mind that performance measurement will not in itself produce higher levels of effectiveness and efficiency. These qualities will be achieved only through decisions to rearrange resources, work methods and task priorities. But performance measurement can provide the hard data necessary to redirect effort. A parallel might be drawn between municipal performance measurement and the cost accounting, market research and quality control systems of private business. If large business enterprises see such systems as essential to decision making, why should large public enterprises behave differently?

Clearly, municipal politicians and civic servants have always desired to provide effective, efficient services to the public. But often they have lacked valid, reliable, objective performance data, and have therefore had to rely heavily on political judgement and professional experience. Performance measurement will not supplant political judgement and professional experience. Rather it will augment them in the decision making process. The managers of municipalities, whether they be the elected or the appointed officials, make decisions on the basis of the best available information. Performance measurement will improve that information.

Performance measurement, therefore, is not offered as a panacea to all municipal ills but rather as a component of good management. In fact, it will likely find its earliest acceptance and greatest success in those municipalities which already exhibit the characteristics of advanced, progressive municipal management. Some of those characteristics include the Chief Administrative Officer (CAO) form of organization, a computer-based information system, and an advanced budgeting system. But any municipality or municipal department should be able to introduce some degree of performance measurement into its operations; even though a municipality may not have ideal management conditions, it will have taken a large progressive step in that direction if it implements performance measurement.

This publication is a practical guide to developing a municipal performance measurement program. However, the subject of performance measurement is both large and complex, and many of the topics discussed in this publication are but distillations of current theory and practice. The bibliography at the end of this publication sets forth some of the major works on the subject of performance measurement and is recommended to interested municipal managers.

Performance measurement is a different, even radical, new technique of municipal management and for most municipalities it will not be simple to develop and implement. It will create organizational stresses as more emphasis is shifted to quantifiable performance criteria, it will require time and patience, and it will involve cost in terms of both money and manpower. Yet as a growing number of municipalities are learning, performance measurement can provide the information that managers need to improve municipal effectiveness and efficiency. Performance measurement is a feasible management system, having been implemented in such U.S. municipalities as Sunnyvale and Palo Alto in California, Fairfax County in Virginia, Scottsdale in Arizona, Dayton in Ohio, Washington, D.C., Dallas, Milwaukee, Nashville, St. Petersburg, Cincinnati and many others. A growing number of Canadian municipalities are also moving to implement performance measurement, among them Thunder Bay, the Region of Ottawa-Carleton, Scarborough and Halifax. The experiences of four municipalities are briefly described later in this publication, but interested municipal managers are urged to investigate in more detail the performance measurement programs of municipalities with experience in this field.

II DEVELOPING A SET OF PERFORMANCE MEASUREMENTS

A. Effectiveness and Efficiency in the Municipal Context

i) Effectiveness

Effectiveness has been defined in terms of the extent to which an organization achieves its goals and objectives. In the municipal context goals are the policy statements which guide the direction of the municipality usually over a multi-year time frame. Objectives are specific statements which describe measurable managed actions that contribute to accomplishing a goal within a more restricted time frame. In a sense, goals are strategic aims while objectives are tactical aims by which goals are achieved. For example, one of a municipality's goals may be to reduce property losses due to fires by 20% over the next five years. To accomplish that goal, the municipality may formulate an array of more specific objectives, some of which may include an increase of 30% in the identification of fire hazards through fire inspection services, a reduction in response time of 25% and a reduction of 10% in the amount of fire spread after the arrival of the first fire fighting unit.

Note that goals and objectives do not concern the resources used to provide services but rather they concern the impact of the services. A municipal service is effective if it achieves the desired impact, as specified in the goal or objective statement. Measuring the effectiveness of a municipal service then, means stating what the service seeks to do and evaluating the degree to which it meets its aims.

The simple definition of effectiveness as the achievement of goals and objectives, however, does not take account of complexities within the context of municipal government. These complexities, discussed below, are demand, quality and difficulty.

By demand we mean the perceived need for a service and its relative priority in the eyes of citizens and their representatives. Although this subject is more akin to policy-making than to performance measurement of operations, it is still an important element of effectiveness measurement, because if effectiveness means the achievement of service goals and objectives, then it is the relative demand for various services that should cause goals and objectives to be set. Demand might be measured by some combination of such techniques as citizen surveys, studies of local economic conditions, reports on the number of applications, requests or complaints received, expert evaluations such as roads needs studies, and so forth. A municipality should attempt to measure the relative demand for services because such information will help decision-makers, especially councillors, to identify the services deemed most important at a given point in time, the type of service needed, and the criteria by which the success of a service at meeting those needs can be assessed. In the municipal context, effectiveness means not only success at doing things, but also doing the right things.

By quality, we mean that effectiveness measurements must specify that goals and objectives, particularly the latter, must be accomplished with a stated standard of excellence. For example, a municipality may set such objectives as an increase in crimes cleared by arrest, an increase

in children placed for adoption, or an increase in potholes patched. But what if such measurements motivated employees to meet such increases at the expense of the quality of the work performed? What if lack of adequate evidence caused a charge to be dropped, a child placement lasted only two months, or a road patch disintegrated after three weeks? In measuring effectiveness, a municipality must not only know that things were done, but also that they were done well.

By difficulty, we take cognizance that in most municipal services there can be a high degree of variability in complexity of the incoming workload. Some types of crime are more difficult to solve than others, a fire in an advanced stage of spread will likely be more difficult to control than one which has just started, and soil conditions in some locations may make road reconstruction or repair work more arduous than in other locations. As far as possible, effectiveness measurements must make allowance for difficulty factors by classifying the relative difficulty of workload units.

ii) Efficiency

Efficiency measurements define the quantitative relationship between inputs and outputs. They can be either productivity ratios (output divided by input) or unit cost ratios (input divided by output). For purposes of illustration, this paper will speak of the latter type exclusively, though either is acceptable. An organization is said to have become more efficient if its unit cost ratio declines, that is, if it costs less to produce each unit.

a) Inputs

Any resource can be used as the numerator of the unit cost ratio. For most municipal performance measurement purposes inputs will be represented by employee time or dollar cost, although such inputs as machine time, amount of land, floor space or units of energy may be used for special analyses. Employee time is often used in circumstances where it is the only significant controllable input or where wages and salaries represent the preponderance of dollar cost. Also, employee time does not suffer from the distortionary effects that inflation has on dollar cost.

In many services, the mix of inputs is complex and input measurement must be in terms of dollar cost. In many municipalities cost accounting systems exist which accumulate cost data for specific services provided by municipal departments, but some restructuring of cost data may well be required for performance measurement purposes. However, three special precautions on the use of cost data for efficiency measurement should be mentioned at this point.

First, because year-to-year comparison is an important use of efficiency measurement data, the distortionary effects of inflation must be taken into account. An appropriate price index should therefore be selected to adjust current dollars to "constant dollars".

Second, because comparison among organizational units or different municipalities is also an important use of efficiency measurement data, care must be taken that what is defined as cost in one unit or municipality

is the same in the other units or municipalities to which comparisons are made.

Third, because performance measurements are used for decision making purposes, the accumulation of cost data should be guided by the requirements of the decision in question. For example, if the efficiency of garbage collection crews were being measured, then it would not be appropriate to allocate to those crews the administration costs of the department, which are outside the control of those crews or their supervisors. If the entire department was being measured, departmental overheads would properly be included but not such general overhead items as the costs of the finance department, the mayor's salary and so forth. A good rule of thumb might be to accumulate only those costs which can be directly attributed to the unit or activity under consideration. For overhead costs, separate cost centres should be defined and separate performance measurements developed for them.

b) Outputs

The denominator of the unit cost ratio, outputs, is the number of units of workload accomplished, for example, lane miles of road snow-ploughed, crimes investigated, tons of garbage collected, gallons of sewage treated, number of clients served, and so forth. Workload counts do not always indicate whether the task was accomplished well or not, and a decrease in the unit cost ratio by means of increased output but at the expense of service effectiveness and quality cannot be called a true productivity gain. Therefore, where possible, a municipality should count as units of workload only those which meet certain quality standards. This prescription may not always be feasible, of course. For example, the number of library users served is much easier to determine than the number of satisfied users. Nonetheless, a municipality should attempt to count those units of output which contribute toward the effectiveness of the service being measured. Even in those services where effectiveness may be measured by the degree of client or citizen satisfaction, it may be possible to develop some sort of efficiency measurement. For example, if a 10% increase in spending on street cleaning was accompanied by a 15% increase in the level of satisfaction citizens expressed about the cleanliness of streets, then an efficiency gain could be said to have occurred.

Two other types of measurements are often covered under the name of efficiency measurement. The first, resource utilization measurements, indicate the amount of time in which personnel or equipment provide or are available to provide service. Thus downtime for equipment repair and maintenance or idle time of work crews would be deducted from total time and the remainder divided by total time to calculate a resource utilization rate. The assumption here is that the higher the rate, the higher the efficiency, although this does not say anything about the amount of work accomplished or its quality.

The second, normalized cost measurements, have often been used as efficiency indicators but in fact, demonstrate little relationship between inputs and workload. Typical examples of such measurements are cost per capita, employees per capita and cost per \$1000 of equalized assessment. Normalized cost measurements may be useful in establishing rough benchmarks over time or among municipalities; however, by themselves they say nothing about operational efficiency.

B. The Selection Process

i) Criteria for Measurement Selection

A program to measure the performance of municipal services generates data which will be used to make decisions. If those decisions are to be made with confidence, the effectiveness and efficiency measurements selected by a municipality must conform to the following criteria:

- Validity - A measurement must be as precisely as possible an indicator of effectiveness or efficiency, and it must be appropriate to the objective of the service.
- Completeness - One measurement is usually not enough to indicate service effectiveness or efficiency. Therefore, a set of measurements for a service should be selected which should account for all or most of the criteria by which the effectiveness and efficiency of a service are evaluated.
- Clarity - A measurement must be understandable. A complex, technical measurement may present some difficulty to those without an appropriate professional background, for example, councillors, although it may be useful to operational managers. By the same token, the set of measurements must not be so large and complex that decision makers become overburdened with data. Most desirable may be a set of measurements that include some general measurements for policy-makers and some more technical measurements for operational personnel.
- Controllability - Although efficiency and effectiveness can be influenced by factors beyond management's control, a measurement must deal with phenomena that management can at least partially affect.
- Accuracy - Decision makers must be able to rely on the accuracy of performance data. A measurement must be selected with reference to whether it is feasible to confirm the accuracy of reported results.
- Uniqueness - A measurement must reveal a characteristic of the service that no other measurement reveals, in order to avoid overlap and duplication of measurement results.
- Consistency - A performance measurement must represent the same type of phenomena in all cases and at all times, because performance data is useful only in comparison, whether the comparison is to performance budgets, to previous time periods or to other organizations within or outside of the municipality.

- Cost - In most cases gathering performance data will cost time or money. The benefit to be derived from the use of the data should exceed the cost of collecting it.
- Timeliness - It must be possible to collect, process and distribute performance data to decision makers within the time frame required by the decision.

ii) Sequential and Concurrent Selection of Goals, Objectives and Measurements

The process of selecting performance measurements can take place in two ways. The most obvious way is the sequential method of discerning demand, defining goals and objectives and developing performance measurements appropriate to those goals and objectives, as described earlier in this chapter. This method of selecting performance measurements is desirable because it imposes the discipline of planning, control and feedback on an organization. Government, including municipal government, has often been criticized for operating too much in the crisis management mode, whereby services are administered in historically established ways until a disaster forces an immediate and radical change. However, planning and control of municipal services represents the crisis avoidance mode of management, while information feedback and the resultant revision of plans allows for flexibility in the event of changed circumstances. But even more fundamental than the discipline imposed through goal and objective formulation, is the notion that no organization can know what performance to measure until it knows what it wants to do. Logically, goal and objective formulation should precede the selection of performance measurements. This, then, is the theoretically superior way to select efficiency and especially effectiveness measurements.

Theory is one thing; reality is often another. The reality of municipalities is that only a handful have a formal statement of measurable goals and objectives. This lack of experience can cause a goal and objective setting exercise to proceed quite slowly.

Such was the experience of the City of Thunder Bay, Ontario, when it embarked upon its performance measurement program. To deal with this problem, the City developed goals and objectives concurrently with performance measurement selection. For each service the City assembled a large variety of performance measurements with examples drawn from the literature on the subject, from the experience of other municipalities which had implemented performance measurement programs and from the ideas of the City's elected and appointed officials. The managers of each service, assisted by a central group of analysts responsible for developing the performance measurement program, selected those indicators of effectiveness and efficiency which they believed to be most appropriate to their particular services. Officials in the City of Thunder Bay hold that this concurrent selection of goals, objectives and measurements not only speeds up the selection process, but also is theoretically acceptable because through the selection of performance measurements previously unarticulated goals and objectives are revealed.

Whether a municipality uses the sequential method or the concurrent method of selecting effectiveness and efficiency indicators is immaterial, provided the end result is a set of performance measurements that meet the nine criteria outlined in the previous section of this chapter. Essentially, a municipality should use the way that will work best in its own situation.

III ORGANIZING A PERFORMANCE MEASUREMENT PROGRAM

The first two chapters of this publication have discussed the theory of performance measurement. This chapter is a guide for putting theory into practice. There are six steps involved in organizing a municipal performance measurement program. This chapter describes the organization of a performance measurement program designed eventually to include all municipal departments. However, an essentially similar process could be followed by a department head wishing to organize performance measurement in his/her area of responsibility only.

A. Obtain Approval in Principle

The rigorous, quantitative performance measurement described in this paper clearly represents a major departure from the traditional way in which municipalities have evaluated their services and their employees. It will therefore be essential that top management, that is, councillors and senior administrative officials, be firmly committed to such a program. This commitment will be most readily gained when top management already perceives the need for increased efficiency and effectiveness and when it already displays a progressive and secure attitude with respect to new management techniques. In fact, most successful performance measurement programs are initiated by the mayor or the Chief Administrative Officer (CAO) of a municipality, or by department heads when the program is implemented in a single service only.

But regardless of who initiates the program, a general proposal should be written which outlines the need for performance measurement and the techniques of implementing the program, including the steps outlined in this and the next chapter, and which documents typical measurements, the experiences of other municipalities which have adopted performance measurement, and the expected benefits. Typical costs and a time frame should be included, with suggested alternative approaches to obtain the maximum benefit/cost ratio for the program. The proposal should be circulated for comment to all the top managers who will be part of the program. While it would be unrealistic to expect unanimous approval, the formal, written commitment in principle of the council, the CAO (if present), and most department heads is essential.

B. Designate Central Implementation Authority

After approval in principle is obtained, but before a project team is constituted, a central implementation authority should be designated to oversee and expedite, in a general sense, the implementation of the performance measurement program. This authority must ensure that the approved principles of the program proposal are adhered to, and must also be prepared to arbitrate conflicts and issue directives to deal with any bottlenecks or resistance of some municipal employees.

This authority must be vested in someone, whether the mayor or his designate, a steering committee of councillors and/or senior appointed officials or the chief administrative officer. Evidence suggests that performance measurement is more easily implemented where a municipality has a strong CAO, principally because the clear lines of accountability allow for quicker, more assertive corporate decision-

making. For municipalities without a CAO, performance measurement is still feasible but the need for a clearly identified authority is that much stronger.

C. Create Project Team

A team of analysts from varied disciplines must normally be created to implement a performance measurement program. Rarely do department managers and employees have the experience or time necessary to develop a set of good performance measurements and to set up data collection and utilization systems. A team of analysts, however, can assist departments in defining goals and objectives, in selecting measurements and in testing the feasibility of various collection and utilization techniques. Larger municipalities may already have a central team of analysts, possibly attached to the Treasurer's or CAO's office, to conduct the program, and it may also be possible to second personnel from other departments to serve on the team. In smaller municipalities, though, it may be necessary to hire such analysts or to use the services of consultants experienced in municipal performance measurement.

Regardless of how the team of analysts is obtained, one individual should be designated as program co-ordinator. This individual should be a municipal employee who has a broad background of training and experience in the municipality, and who enjoys good relationships with fellow employees, particularly managers. It will be his task to oversee the day-to-day operation of the program, to co-ordinate the efforts of the team of analysts and to liaise with all levels of management. The program co-ordinator must have the clear backing of senior management in order to be effective. If the performance measurement program is to encompass several municipal services, the program co-ordinator must be able to devote his full time to the program.

D. Select Critical Services

While a comprehensive performance measurement program encompassing all municipal services is desirable, resource limitations may constrain a municipality, especially a smaller one, to implement the program in certain services only. Therefore, it is important to determine which services get priority treatment.

The program co-ordinator should prepare an initial list of services in which performance measurement might be implemented. Ideas can be solicited from a variety of sources. Operating departments may suggest services which they believe it would be useful to measure. For example, a department head may be aware of particular problem areas, he may wish to gauge the efficiency of new work methods, or he may wish to demonstrate that a service is in need of additional resources. Staff departments such as Planning or Treasury may suggest services with which they have frequent contact as candidates for performance measurement. Elected officials are a major source of suggestions. Community groups such as service clubs, ratepayers' associations and special interest groups could be canvassed for ideas. Finally, citizen surveys could be undertaken to determine the level of satisfaction with, and the relative demand for, various municipal services, the more important ones being prime candidates for measurement.

After the initial list is prepared the program co-ordinator can screen the list and recommend to council or the designated implementation authority the services to be measured. If all services are eventually to be included in the performance measurement program, it is important that those included first are successfully implemented. The selection of any particular service, then, should be guided by certain criteria. The service must lend itself to relatively easy measurement. The service must not enjoy such strong community or council support that change is unlikely despite the performance measurement results. The service must be significant enough in terms of cost or impact to merit the effort. There must be substantial likelihood of improving performance, even for services already perceived to be effective and efficient, so that performance measurement is seen as a tool to improve services rather than as a means of criticizing and embarrassing departments. The service should be approaching some critical decision point in terms of its continuance, growth, funding or operational techniques. There should be a sufficient availability of data. The cost of implementing performance measurement in the service should not be too great. Performance results should also be obtainable in a relatively short time frame. Finally, performance improvements should yield easily visible benefits.

E. Orientate Participants

It is essential that the participants in a municipal performance measurement program understand and support its aims and techniques. Four groups of people will be affected in most performance measurement efforts: senior management such as council and senior administrators, middle management, employees, and ratepayers and inhabitants.

Senior management, responsible for the overall effectiveness and efficiency of the municipality, will be primary users of performance data. Before other groups, they must be educated in the purpose and use of performance measurement, so that they may support the program and ensure that it serves the municipality's needs. Training sessions will be useful in this respect, but because this group's active support is so essential to success of the program, time spent by the project co-ordinator on personal contact with the central implementation authority and other senior management will be time well spent.

Middle management, who will be responsible for implementation, must be encouraged to co-operate in the program, and directives to this effect passed down from above will not be enough to secure co-operation. Training seminars should be held to orientate this group. Middle management should also be directly involved in designing the measurements and the data collection procedures. Each department should designate a representative to act as liaison with the project team. Most importantly, senior management must convey to middle management and employees that the performance measurement program is not a witch-hunt but rather is a means to improve municipal operations.

The orientation of employees is very important because it is they who will often provide performance data, because the nature of their work may be directly affected by the decisions based on such data, and because the successful implementation of these decisions may be dependent upon the co-operation of employees. Through literature or seminars, management should clearly communicate to employees the

purpose and structure of the performance measurement program. Employee unions should be consulted from the outset. To assuage any apprehension on the part of municipal employees, management could ensure that no existing employee would be laid off as a direct result of the program, though total staff complement could decline through attrition. Some municipalities might also wish to involve employees directly in service evaluation, as Cincinnati has done. An incentive program could also be tied to municipal performance measurement, as has been done in Kansas City, Flint in Michigan and Philadelphia.

It is for the benefit of ratepayers and inhabitants that municipal services are provided. Moreover, many effectiveness measurements rely on citizen or client evaluation. It is important that the municipality encourage ratepayers and inhabitants to become more knowledgeable about local services. Ratepayers and inhabitants should be informed through public announcements that a performance measurement program is being initiated and that their perceptions of performance may be solicited through surveys. Ratepayers and inhabitants could also be recruited to sit on a performance measurement steering committee or advisory council, as is done in Washington, D.C., and St. Petersburg. Summaries of performance results could be mailed to citizens or published in the local press. On this last point, it is quite important to orientate the press to the aims and techniques of performance measurement. The press should be encouraged to view the program as an honest attempt to improve municipal services and not as an opportunity to embarrass local officials. Members of the press have a right to publicize consistently poor performance, of course. But they also owe it to the community to allow performance measurement time to work.

F. Establish Detailed Implementation Plan

A detailed implementation plan must be created and approved. This plan should outline the major implementation tasks. They are:

- 1) identify service goals and objectives;
- 2) select effectiveness and efficiency measurements;
- 3) establish data collection procedures; and
- 4) determine the means by which performance results will be analyzed.

The first two tasks have been discussed in Chapter II. The latter two are detailed in Chapter IV.

Two other elements, though, are needed in a good implementation plan: time and resource requirements, and performance criteria of the program itself.

Time and resource requirements are difficult to estimate because the size and scope of performance measurement programs can vary. A fully operational performance measurement program seems to require some three years from inception, through initial start-up and "debugging", to an established program that can be used with confidence over an extended period. Resources required can be few if the program is confined to one or a few services, or large if a municipal-wide program is undertaken. Resources which are mentioned at various points in this publication could include a project team and co-ordinator, consulting services, training and orientation costs, redesign of information forms, trained observers, citizen surveys and, of course, the time of council, managers and employees. Estimates of these resources must be made for inclusion in the project proposal as well as the detailed implementation plan. They can be based on the needs of the municipality and possibly on the experiences of other municipalities.

Costs must be weighed against benefits, and the benefits of municipal performance measurement, like its costs, are hard to estimate. Essentially, the benefit is better information. This information can be used by decision makers to improve municipal effectiveness and efficiency; in other words, to make more productive use of municipal tax dollars.

A set of performance criteria of the performance measurement program itself is the final element of the implementation plan. If the program has achieved its aim of providing better information to management, then the following results should be observed. First, councillors and staff would be better informed about municipal services, and therefore able to improve the quality of strategic and operational decisions. Second, many departments should be able to find, implement and document effectiveness and efficiency improvements. Third, the controllable unit cost of services should become stabilized. Fourth, resources should become allocated on the basis of quantifiably demonstrable need, and according to the strength of relative demand in the community. Fifth, citizen satisfaction with services should become higher.

These benefits of a municipal performance measurement program rest on one important assumption; that management will use performance data to make decisions that result in change. Like any information system, performance measurement in and of itself will not improve effectiveness and efficiency. It can, though, indicate where such improvements are desirable and possible. Performance measurement will provide new information. But the responsibility for acting on that information rests, as it always has, with management.

The important question of how performance data can be collected and used is discussed in the next chapter.

IV COLLECTING AND USING PERFORMANCE DATA

A. Data Collection Techniques

i) Data Collection by Operational Personnel

For most municipalities initiating a performance measurement program, the principle source of data will be records compiled by municipal employees in both staff and line functions. A great deal of information is currently gathered in this way, and some of this information can be adapted to performance measurement. For example, many municipalities already collect workload data such as number of cases investigated, number of gallons of water distributed, number of clients served, number of repairs made, and so forth. Cost data is also compiled, sometimes on a service or task basis, sometimes only on a departmental basis. As well, a good deal of financial and non-financial information is prepared by municipalities to meet the reporting or grant application requirements of senior levels of government. Before embarking on a performance measurement program, a municipality should survey the data it currently collects to discover what can be used for performance measurement purposes. However, it will be necessary in many cases both to modify existing data collection procedures to adapt them to performance measurement, and to collect entirely new data. In an ongoing performance measurement program, most of this new or modified data will be collected via municipal operational employees.

It would be too large a task in this publication to list and evaluate the information municipalities now collect or might collect about all individual services, although examples relating to some services are given later. This section is therefore confined to a general discussion on the procedure for gathering performance information internally. There are four steps involved.

First, the required data must be identified. This first step is actually the measurement selection process. The performance measurements selected as being appropriate to the goals and objectives of the municipality will define the data needed. If field collection is indicated, it would be wise to develop a number of alternative measurements as it may not prove feasible to collect some kinds of data. It is also important to define rigorously the data required to ensure consistency over time and among data collectors. Although some revisions are unavoidable, too many revisions will obviate comparability and may create frustration and resistance among those physically collecting the information.

Second, data availability must be determined. As mentioned, municipalities often already collect data which could be adapted to performance measurement. Existing records should be searched to discover if the performance data required, or components of it, are currently being collected. The data may be stored or collected by more than one agency or jurisdiction (e.g. traffic volume and accident statistics). In this case, the co-operation of these agencies must be obtained through negotiation, offers to provide the physical resources needed to collect the data, or as a last resort through directives issued by higher authorities. If new data is required, it can be collected either by adding more data items to records routinely kept or by establishing new

records and procedures. While the latter method may be necessary in some cases, the former is more desirable in that it may cause fewer disruptions and less confusion among those physically collecting the data. Whether the data is new or already exists, it would be wise to pre-test it for validity, accuracy, "collectibility" and timeliness to avoid problems during actual implementation.

Third, the data must be physically collected. Although clerks familiar with data accumulation may be the most reliable data collectors, it will often only be feasible to collect information from operational personnel, that is, those delivering the service being measured. Operational personnel should first undergo an orientation program to make them aware of the purpose and methodology of the performance measurement program and their contribution to it. In this respect their participation in selecting measures or at least in commenting on collection procedures should be encouraged. Operational personnel will need thorough training and clear concise directions on how to complete data collection forms. The forms should be pre-printed and include instructions and examples. Periodic re-training sessions and spot checks for accuracy will be needed.

Fourth, accuracy must be verified. This step is not chronological, but rather should occur at the same time data is being collected. Two major types of data collection errors could occur: clerical errors and estimating errors.

Clerical errors such as transposed digits, arithmetical mistakes and incorrectly recorded figures are reasonably easy to detect principally by comparison to forms filed by others and by sample audits. If the error rate is large, say ten percent, the source of the errors must be isolated. If errors are confined to specific individuals, retraining, re-emphasis of the importance of accuracy, or replacement may be called for. If errors are common to all data collectors, clarification or redesign of forms is probably required.

Estimations are often needed in municipal performance measurement. For example, a measurement that is often suggested as indicating the effectiveness of the fire fighting force is "percentage of fire spread after the arrival of the first unit". Such a measurement cannot be verified after the fact. Estimation errors can be minimized in the following ways.

First, a rating system must be developed to guide estimation. It should contain clear and comprehensive definitions and should be pre-tested. The operational personnel who will be making the estimations must be trained and tested in the use of the rating system. Second, independent tests or audits could be periodically conducted, although such tests may influence results. For example, an independent observer testing the measurement cited above would likely have to wait at the fire station for an alarm to be turned in, alerting the person being tested to apply particular rigour to his estimation. Third, comparative data from other units, or possibly other jurisdictions, could be used to gauge accuracy. Finally, other more precise measurements might serve as some sort of check. In this example, "time to control fire spread" can be more rigorously collected and may bear some relationship to "percentage fire spread after arrival of the first fire fighting unit".

ii) Trained Observer Ratings

Suppose a municipality set a goal of having streets clean of litter and refuse. How would it measure the cleanliness of its streets? Or suppose it wanted to provide the motor vehicle users of the community with smooth streets free of potholes, bumps and excessive patching. How can the municipality determine the relative "smoothness" or "bumpiness" of its roads?

Elected officials often make these evaluations although their judgments are usually subjective. In many communities the heavy workload of councillors and the sheer size of the community may make it impossible for councillors to rate municipal services in any systematic way. It may, therefore, become necessary to delegate the responsibility for observing and rating municipal services. Because it would probably be unfair to ask those employees providing a service to rate subjectively their own performance, a municipality may wish to employ independent observers who are trained in rating the performance of municipal services.

The use of trained observers to measure municipal performance is not widespread at this time. Nevertheless, a number of large cities in North America, including Washington, D.C., Nashville, and St. Petersburg have been using trained observer ratings for as long as five years now. The use of trained observers has enabled these cities to develop performance measurements which are more technically precise than those possible from citizen or user surveys, and which could not be derived from numerical data gathered by operational personnel. But there are obvious costs involved in using this technique of performance data collection, and the value of the technique has yet to be demonstrated in a Canadian setting. We therefore recommend that any municipality considering using trained observer ratings should carefully study the procedures used in the above-noted cities. We can, however, provide an overview of trained observer rating procedures.

Observers must be provided with explicit definitions for the grades of each condition to be measured in order to minimize perceptual biases. Thus, definitions should be both written and visual, i.e. photographs of typical scenes exemplifying various grades of performance should be provided. The definitions should also be explicit in terms of the area to be inspected, the factors that determine various grades and the precise conditions that are to be rated. There should not be too many degrees of performance (four or five would do, for example, 'poor, average, good, excellent' or "smooth, moderately bumpy, very bumpy, safety hazard").

Procedures must be instituted for selecting inspection locations, for directing observers and for recording and processing the data. To minimize the cost of this technique, it may be desirable to observe only a sample of locations rather than all locations. If so, all locations must be identified and an appropriate sample selected. Supervisory staff should be appointed to schedule observers, retrieve the data from them and generally direct their activities. The rating data should be recorded on pre-printed forms and transcribed onto summary sheets soon after the ratings have been conducted. The transcription could be done by clerical staff, although some municipalities assign this task to observers on a rotating basis.

Observers must be selected and trained. If proper definitions have been formulated and data recording forms are clear and comprehensive, then the inspection task should not require personnel highly qualified in a technical sense. But the observers should be reliable, able to withstand a certain degree of tedium, able to work independently, and attentive of detail. Students might be good and relatively inexpensive observers. Observers must be thoroughly trained. They should be tested individually to evaluate their understanding of the system, and they should be tested as a group to ensure that the written and photographic definitions result in little rating variation among different observers.

Observer ratings must be monitored and verified. Even when the variety of observed conditions does not change, people tend to compress their ratings toward the middle of a scale as time passes. To combat this, it will be necessary for supervisory staff to check ratings on a random basis. Such checks must of course be made soon after an observer's inspection, and it should be made known to observers that such monitoring will take place.

iii) Citizen/Client Surveys

The ultimate test of the effectiveness of a municipal service is the satisfaction of the citizens with that service. Municipal elections are, in a sense, a regular measure of the citizenry's level of satisfaction. But there are major drawbacks to relying solely on the electoral process to measure the effectiveness of municipal programs. For one thing, two or three years, the typical term of municipal office in Canada, is a long time for a department to wait to find out whether it is doing a good job. More importantly, elections are a "noisy" mechanism for evaluating programs. All services are being evaluated at once, and a number of "extraneous" factors - personalities, economic conditions, party affiliations, etc. - can enter into the equation.

One answer may be regular surveys of citizens' attitudes toward the municipality and its services. A number of U.S. cities, including Dayton, Ohio, Washington, D.C., St. Petersburg, and Nashville have conducted such surveys. The City of Toronto is also experimenting with surveys.

A survey is carried out by administering a questionnaire to a scientifically selected sample of the population. The survey can deal with a particular service of the municipality or some or all of the services. Questionnaires should generally try to elicit three types of information. The first is the use that a citizen makes of a service; the second is his or her evaluation of the service; and the third is certain personal characteristics (residence, income level, etc.).

Few municipalities will have the resources to design and implement surveys on their own. Even if there is in-house expertise for the designing of surveys, the use of existing personnel for interviewing can interfere with the performance of regular duties. For this reason, it is usually best to engage the services of a market survey or opinion-polling firm. The cost will have to be weighed very carefully against the expected benefits.

For several reasons, the citizen survey technique of municipal performance measurement is probably of more value for making strategic decisions than for evaluating the performance of management in an operational sense. First, citizens often exhibit a low level of interest in,

and knowledge about, the daily operation of municipal government. It is, of course, valid for citizens to evaluate services however they may have arrived at their opinions. But if their opinions are impressionistic rather than knowledge-based, the value of citizen surveys is probably greater in evaluating the past and future community goals in an overall sense than in evaluating the operating objectives of municipal departments.

Second, the evaluation of services often results in overall ratings at the middle of the scale (e.g. "fair to good"). This phenomenon is likely a result of lack of knowledge or interest. Here again, the usefulness of such surveys in measuring performance against objectives is questionable. However, if a service received an extreme rating, this fact, juxtaposed against the tendency to compress ratings, would single that service out for special attention.

Third, a citizen survey can be costly. One U.S. study estimated in 1975 that multi-service citizen surveys could cost between \$10 and \$15 per interview for surveys of between 600 to 1000 interviews. The City of Toronto's survey of 1200 citizens, conducted in the summer of 1981, cost over \$50,000. Many municipalities may be willing to make this investment only on a needs basis, possibly for use as a budgetary planning tool.

Client surveys can be a much richer source of information on the operating performance of municipal services. They can be designed in much the same way as general citizen surveys but can be administered on site to those using the service. Thus, a municipality may be more confident that these survey respondents do have some knowledge of the service they are using. A drawback to client surveys is that they do not seek data from those citizens who may be dissatisfied and therefore do not use the service.

B. Using Performance Data

We have already stated that today's difficult social and economic climate is challenging municipal governments to improve the effectiveness and efficiency of the services they deliver. The purpose of this publication is to provide municipal governments with a tool to assess the extent to which they are coping with this challenge. Municipal performance measurement cannot, in and of itself, improve effectiveness and efficiency. But it can indicate where performance is superior, satisfactory or inferior. Supplied with this information, elected and appointed officials can investigate the causes for varying performance levels and can take decisions to ensure that superior performance is emulated, that satisfactory performance is maintained and that inferior performance is improved.

Judgements about superior, satisfactory and inferior performance can be made only through comparison. There are five ways of making comparisons.

First, actual performance can be compared to performance standards. Municipal financial officers will be familiar with standard costing techniques often used in private sector manufacturing enterprises, by which a standard amount of material and equipment and labour time to produce a unit of output is determined, often by industrial engineering methods. Performance can be appraised by comparing what did happen to

what should have happened, and can be further investigated through variance analysis. It may be possible to develop similar performance standards for municipal services, particularly in such engineering-based services as water supply and distribution, solid and liquid waste collection and disposal, and road maintenance. However, few standards currently exist even in these services, let alone in the so-called "soft" services such as the social services. A notable exception is the Municipal Maintenance Management System (MMMS) developed in 1971 by the Ontario Ministry of Transportation and Communications for municipal road maintenance services. This system, which employs classical standard costing concepts, is in use by many municipal governments throughout North America, and has been extended by some municipalities beyond road maintenance into many other physical services. Although the use of municipal performance standards is not widespread at this time, MMMS is proof that it is both possible and very useful to develop standards as criteria against which to measure performance.

Second, performance can be compared over time. Performance during a previous time period can serve as a benchmark against which to evaluate current performance. Trend analysis is also useful to assess effectiveness and efficiency vis-a-vis long-term goals and objectives. As mentioned earlier, comparisons of performance over time must take account of the distortionary effects of non-controllable factors such as inflation.

Third, the performance of organizational units can be compared. In situations where a service is being delivered by more than one organizational unit doing essentially similar tasks, (e.g. garbage collection crews, day-care centres, fire stations), it may be possible to measure relative effectiveness and efficiency and to compare the performance of individual units to the norm.

Fourth, one municipality's performance can be compared to the performance of other municipalities. This sort of comparison can be useful in establishing norms or acceptable ranges of performance. There is also a high probability that investigation of effectiveness and efficiency differences will reveal superior operating methods and technologies which could be transferred among municipalities. However, care should be taken that proper comparisons are made. For example, municipalities may employ different performance measurements, they may collect data in different ways, and they may experience different situations which render comparisons inappropriate. Despite these limitations, intermunicipal comparison is a popular performance measurement technique among many municipalities and is being addressed by senior government levels as well. For example, the Province of Ontario is engaged in a project to develop comparative unit cost measurements for a range of municipal services.

Fifth, actual performance can be compared to planned performance. Comparison of actual performance against goals and objectives may be the most important use of performance data for management. If such comparison is made early enough, it can assist managers in controlling operations, that is, in identifying problem areas and taking corrective action. It can also assist managers in revising old plans and formulating new ones. Moreover, this type of comparison is the most relevant to management because it deals with the organization's own situation, its

own capabilities and its own desires, and because it deals with the present and the future, the only time frames over which management can have any influence.

V EXAMPLES OF PERFORMANCE MEASUREMENTS

This Chapter presents specific performance measurements for five municipal services. It would be impossible in a publication of this size to compile measurement examples for all municipal services. As well, because measurements relate to objectives, different objectives in different municipalities will require different performance measurements, and thus no claim is made as to the general applicability of measurements presented in this chapter. Readers who would like more examples can refer to Thunder Bay's Performance Measurement Manual and Catalogue which accompanies this publication and to the publication Hatry, et al, How Effective Are Your Community Services?, referenced in the Bibliography.

A. Garbage and Rubbish Collection

This service has drawn attention in performance measurement because it is highly visible and deals with easily measurable services. The tasks of employees involved in this work can be categorized, and the work is repetitious in nature thus allowing for consistency of evaluation. Also, the workplace (or route) remains relatively constant. The workload can be measured or weighed with reasonable accuracy and the necessary equipment and supplies do not vary appreciably over time.

In the past ten years there have been considerable changes in collection practices with the introduction of new packer equipment such as the mechanical arm one-man loader. Computerized routing systems have been developed which make optimal use of men and equipment. Even without these two innovations crew sizes have been reduced from 4 or 5 per truck to 3 and sometimes 2 men per truck. Clearly, opportunities for productivity increases exist in this service. Performance measurement can help identify and evaluate these opportunities.

Department - Public Works

Program Area - Garbage and Rubbish Collection

Objective: To collect 100% of all garbage and rubbish on all designated routes according to schedule with a minimum of citizen inconvenience at an average cost of \$X per ton.

Measurement

Data Sources

Effectiveness

- | | |
|--|--|
| 1) percent of garbage collected | - trained observer ratings |
| 2) percent of routes completed on schedule | - trained observer ratings, time sheets, citizen complaint records re: late pick-ups |
| 3) percent of citizens satisfied | - citizen survey |
| 4) number of complaints re: missed collection, noise, spillage, damage, etc. | - citizen complaint records |

Efficiency

- | | | |
|----|--|--|
| 1) | cost per ton | -cost accounting records for cost;
weigh scales for tonnage |
| - | when weigh scales lacking: | |
| 2) | cost per pick-up | - internal records |
| 3) | cost per residential
(or commercial) customer
served | - internal records |

B. Fire Fighting

Although fire fighting accounts for a large percentage of the municipal budget, performance measurement has rarely in the past been considered for this highly visible and vital service. However, significant technological advances have been made in recent years which could present opportunities for performance improvement. As well, today's financial troubles are forcing municipalities to reassess the growth in staffing levels and the man/machine resource mix. Most municipalities which may face cost saving decisions in fire fighting though, will wish to evaluate such decisions in terms of the continued effectiveness of the service. Performance measurement can greatly facilitate making these decisions.

Department - Fire

Program Area - Fire Suppression

Objective: To reduce, on a per fire basis, fire losses to persons and property to X% of previous year's losses through prompt fire suppression activities at an average cost of \$X per alarm.

(Note: Only count fires not out on arrival of first unit, and classify fires by size on arrival and by type of occupancy).

Measurement

Data Sources

Effectiveness

- | | | |
|----|---|---|
| 1) | number of civilian casualties per fire. | - internal records |
| 2) | number of firefighter casualties per fire. | - internal records |
| 3) | dollar loss per fire | - estimations or insurance records. |
| 4) | dollar loss as a percent of potential loss | - insurance records - i.e.
insured loss divided by insured value |
| 5) | percent of fires in which spread after arrival is confined to X%. | - internal records |

- 6) average time to control fire - internal records
- 7) average response time - internal records

Efficiency

- 1) cost per alarm - internal records
- 2) cost per fire - internal records

C. Criminal Investigation and Apprehension

Policing is another highly visible service about which the public is most sensitive. Like fire suppression, new technology has presented some opportunities to police departments, yet the labour intensive cost structure of policing and the variable nature of its workload still renders costs difficult to control and performance measurements difficult to conceptualize. Here, too, effectiveness is of paramount importance because even though many factors determine whether a community is a safe place in which to live and work, the effectiveness of police programs is an extremely important factor. Here we deal with but one program area of police work, criminal investigation and apprehension.

Department - Police

Program Area - Criminal Investigation and Apprehension

Objective: To investigate reported or discovered crimes promptly and to bring X% of offenders promptly to justice at an average cost of X man-hours per investigation.

(Note: Crimes should be classified by type)

Measurement

Data Source

Effectiveness

- 1) percentage of emergency or high priority calls responded to within X minutes, and percentage of non-emergency calls responded to within Y minutes. - internal records
- 2) percentage of crimes cleared by arrest which result in conviction. - internal and court records
- 3) percentage of cases cleared within X days. - internal records
- 4) percent of citizens victimized by crime who expressed satisfaction with police investigation efforts. - citizen survey

Efficiency

- 1) Man-hours per investigation - internal records

D. Building and Plumbing Inspections

Inspection services are being challenged by the same fiscal squeeze that has affected other municipal services. But one of the problems with inspection services is the inability to reduce costs substantially through mechanization or other technological methods. Inspections must be conducted by trained technicians, forcing any productivity improvements to come from reorganization of human resources or adjustments in inspection procedures. Performance measurement will be needed to evaluate such reorganization and adjustment. Performance measurement is feasible in building and plumbing inspection services because tasks are fairly routine and can be categorized with relative rigour. Also, standards for each item being inspected are usually set by law which allows for a standardization of performance at least within a given community.

Department - Engineering

Program Area - Building and Plumbing Inspection

Objective: To provide prompt inspections to uphold legislated building and plumbing requirements at an average cost of X man-hours per inspection.

Measurement

Data Source

Effectiveness

- | | |
|--|--|
| 1) percentage of inspections conducted within X days of request. | - internal records |
| 2) percentage of periodic inspections conducted according to schedule. | - internal records |
| 3) accuracy rate of inspections | - follow-up inspections made by supervisory staff soon after initial inspection-sample basis only. |
| 4) percentage of violations corrected. | - internal records |
| 5) percentage of court actions processed where judgement favours municipality. | - internal and court records |

Efficiency

- 1) man-hours per inspection - internal records

E. Loose-Top Road Maintenance

Performance measurement should be feasible in most road maintenance services because they usually have specifically measurable work standards and materials. However, pre-existing road conditions and quality of the work completed are very important determinants of performance and must be taken into consideration. Therefore, while it is important to determine how many man-hours and how much material were used to maintain a given section of road it is equally important to know the conditions of the road before and after a task was completed. Tasks must be classified, then, by difficulty and quality of work completed.

Technology is providing some improvements in road maintenance, such as newly-developed materials and equipment, but staffing is still a major cost which needs expert management. Some work crews are often more productive than others and their techniques might be transferrable. Performance measurement should operate in this mode, improvement transfers, rather than in a mode which seeks to embarrass less effective and efficient work crews.

Department - Public Works

Program Area- Loose-Top Road Maintenance

Objective - To provide scheduled maintenance through grading and repair of loose-top roads to ensure smooth riding surfaces at an average cost of \$X per km.(grading) and \$X per ton of gravel (repairs).

Measurement

Data Source

Effectiveness

- | | |
|---|----------------------------|
| 1) percent of grading and repair activities completed on schedule, subject to road and weather conditions. | - internal records |
| 2) relative smoothness of riding surfaces. | - trained observer ratings |
| 3) percentage of citizens satisfied with condition of loose-top roads. | - citizen survey |

Efficiency

- | | |
|---|--|
| 1) cost per kilometer of road (grading)- | internal records |
| 2) cost per ton of gravel (repairs)- | internal records (note: cost includes labour, materials and machine time.) |

VI PERFORMANCE MEASUREMENT IN FOUR MUNICIPALITIES

Performance measurement of municipal services is not just a theory. It is a reality in a growing number of municipalities. In this chapter the experiences with performance measurement in four municipalities are briefly discussed. Except where otherwise noted, the opinions expressed in this chapter are those of the authors.

Any community considering a performance measurement program should carefully study the experiences of other municipalities which have broken this new ground. This publication cannot do complete justice to the performance measurement systems in the communities discussed in this chapter: each system is far too elaborate to allow for a complete discussion. Still, these examples indicate that performance measurement has been implemented in various ways and with various degrees of success.

A. Sunnyvale, California

Sunnyvale, a city of 107,000 people lying 40 miles south of San Francisco, first became involved in performance measurement in 1973 as part of a pilot project sponsored by the International City Management Association and the General Accounting Office of the U.S federal government. The program was initiated by the City Manager and extended by his successors. At the time of initiation, Sunnyvale was already involved in program budgeting and had a computer based management information system.

Sunnyvale's performance measurement program is part of an elaborate information system which integrates the budgeting, accounting, control and auditing functions. Besides strengthening these functions, performance measurement data in various degrees of detail can be provided to all levels of management, from council for policy planning purposes to supervisors for operational analysis purposes. Performance measurement is also linked to a personnel evaluation program.

Performance measurement in Sunnyvale is built around a complex hierarchy of responsibility centres through which both cost and performance data can be accumulated. Appropriate responsibility centres are linked through a numerical coding system which is efficient for electronic data processing purposes.

Performance measurement in Sunnyvale is predicated upon the formulation of goals and objectives. Goals, which describe a general community condition that the City wishes to achieve or maintain, are formulated for each major service area, such as mass transit, law enforcement, recreation, and so forth. Goals must conform to policies set forth in the City's comprehensive, long-range plan, and thus they are also broad in scope and have extended time frames. However, the achievement of goals is measured statistically mainly through internally generated data on the community conditions which are the objects of the goals and occasionally through citizen surveys. Citizen task forces assist in goal formulation.

Within each major service area are grouped a number of operating programs. For each of these is developed an array of objectives which support City goals. Objectives, (usually of a more short-term nature than goals) must describe in specific and measurable terms the results which a program is expected to achieve in a stated time frame.

Because both goals and objectives in Sunnyvale are statistically measurable, performance measurements are simply the quantifiable expressions of them, and effectiveness is determined by the extent to which goals and objectives are achieved.

Each of the City's programs is further subdivided into the specific tasks which must be accomplished to achieve the program objectives. Tasks must be measurable in terms of some specific unit of production or service. Task performance is measured against production or service targets. As well, it is at this level of operations that efficiency is measured in Sunnyvale, by calculating the unit cost of the output of tasks.

Sunnyvale's performance measurement program was largely developed "in-house", although a program co-ordinator was hired to administer the system and professional consulting assistance was used in the development of computer-based information systems. The City Manager provides the central authority for the program, and according to Sunnyvale officials the support of this chief executive is definitely the most important factor contributing to the system's success.

Municipal councillors and administrators alike in Sunnyvale are highly satisfied with their performance measurement system. They measure its success by pointing to an increased understanding by both appointed officials and council of the City's operations, a high measured level of citizen satisfaction, unit costs which have declined over time and that are substantially lower than those of similar Californian cities, an increased ability to attract and keep good staff, and a vote by Sunnyvale citizens to reject Proposition 13.

Sunnyvale officials offer the following advice to municipalities considering performance measurement.

- (1) A municipality must prepare for resistance from both council members and staff because of the initial cost of putting in new systems as well as the fear of changing from the more familiar line-by-line budgeting system. Orientation of managers from line supervisors to department heads is an essential early step in implementation.
- (2) The measurements should be kept as simple as possible.
- (3) Strict definitions of efficiency and effectiveness are important, but some services defy precise measurement. Therefore, indirect measurements and political and professional judgement will remain as essential components of a performance measurement program.
- (4) Care should be taken in structuring responsibility centres so that flexibility to shift manpower and resources as conditions and needs change is not lost.
- (5) Outside consulting assistance will likely be required, but a municipality should develop in-house expertise to ensure both quick and accurate program development and to provide continuous management of the performance measurement program.
- (6) Time and quality are two key measures of performance. Reducing cost without negatively impacting on time of response or quality of service is the hallmark of a successful system.

B. Dayton, Ohio

Dayton, with a population of about 200,000, has been consistently ranked among the leaders in the development of progressive municipal systems. It was one of the first cities to adopt the council-manager form of government and it receives continuing recognition in the fields of planning, budgeting and citizen participation. Ironically, the most recent accomplishment, in the field of performance measurement, came about because city services were deteriorating and the City's financial position was worsening. A new City Manager was hired in 1974 to reverse this trend and one of the key elements in his program of reform was performance contracting, a new direction for the management team based on close accountability for the performance of each department head.

At the heart of Dayton's system is a personal contract between the City Manager and each department head which specifically sets forth factual, measurable objectives upon which the department head's performance will be determined during the year. The objectives are developed by the department head and submitted to the City Manager at the beginning of a formal negotiating process. The objectives finally agreed upon are reviewed at the end of each quarter to assess performance and also to determine the department head's rate of pay for the coming year.

Dayton's performance measurement effort is essentially a Management By Objectives (MBO) program. Although MBO was attempted prior to 1974, without the performance contracting and the factual performance measurement aspects, it could not be effectively implemented. Accordingly, one of the first steps taken by the new manager in 1974 was to develop specific and quantifiable objectives for each department representing the service levels attainable with current budget allocations. Objective setting in Dayton began as, and remains, a participative process. Managers at all levels underwent extensive training in MBO, and after three years all departments had been included in the program. Departmental objectives are incorporated into the annual budget. Performance measurements in Dayton, then, measure the extent to which objectives are achieved.

Many of the specific departmental objectives are based on effectiveness data gathered in citizen surveys. For example, within the police department's crime prevention and control programme, one performance measurement was developed as follows:

Programme: Crime prevention and control.

Programme Purpose: To prevent and control crime by eliminating the opportunity for criminal behaviour and by the immediate intervention in potential criminal activity.

Activity: Neighbourhood patrol.

Objective: To increase by three per cent the level of perceived security among city residents, as measured by a public opinion survey.

Performance criteria: Per cent of public opinion survey respondents who classify neighbourhoods as "safe anytime" or "safe if careful".

There are a number of additional objectives and performance criteria based on a wide range of data, for example, crime statistics, as well as the citizen surveys. Each department has a number of performance objectives which range from twenty in the Planning Department to over 200 specific objectives in the Department of Human Resources.

Dayton's performance measurement system is concerned primarily with effectiveness measurement. This focus is due to severe expenditure constraints, mainly in staffing, imposed by council. With a fixed level of expenditure then, an increase in effectiveness is by definition an increase in efficiency. However, this focus on effectiveness does limit the usefulness of performance measurement. For example, in Dayton little program evaluation is undertaken to develop new, more efficient methods of providing various services, although Dayton officials claim that this is occurring naturally as a result of MBO. Special program evaluations are undertaken when major problem areas are identified but limited resources prevent evaluations of all departments on a systematic basis.

Dayton's performance measurement information system is basically manual, and there have been problems compiling performance statistics in a timely manner. Nevertheless, quarterly performance reviews are still conducted. While a computerized information system could facilitate more frequent reviews, the City of Dayton regards quarterly reviews as acceptable for performance control purposes.

Verification of performance criteria and results suffers from the resource constraint policy which applies to all City operations, in that there are insufficient resources to conduct comprehensive performance audits annually. Performance audits are conducted on one-third of all departments on a yearly basis. The City's Office of Management and Budget visits various departments throughout the year and requires that information on the accomplishment of departmental goals and objectives be produced and verified. The Office of Management and Budget, in an attempt to cope with the resource constraint policy, has recently been conducting performance audits only on a sample of the performance objectives out of the many objectives a department may have, on the theory that accuracy in the sample implies accuracy in the totality. Performance audits are seen as critical to the maintenance of a credible performance measurement program.

C. Thunder Bay, Ontario

Thunder Bay is a city of 112,000 people located at the head of Lake Superior. The city is an internationally recognized leader in municipal administration, having implemented such progressive management techniques as zero-based budgeting, corporate planning, Municipal Maintenance Management System, and a CAO form of organization structure.

In early 1980 the City, with the assistance of the provincial government of Ontario, embarked upon a performance measurement program. For each major service area in every department, the City has developed a set of workload, efficiency and effectiveness indicators by which performance will be judged. These measurements and a description of the process by which the program was implemented, are contained in the publication, Performance Measurement Manual and Catalogue, which accompanies this publication.

The procedure which Thunder Bay adopted for organizing a performance measurement program was generally that described in Chapter III of this publication. It is worth repeating an observation made earlier, though, that for Thunder Bay, the development of performance measurements was not contingent upon formulation of goals and objectives, but rather was concurrent with such formulation. The major lessons taught by the Thunder Bay experience are that top management support is absolutely essential, and that the development and implementation of performance measurement must be a flexible, participative process.

A gap in Thunder Bay's program at the present time is the lack of electronic data processing capability sufficient to incorporate the performance measurement efforts of all municipal departments. Performance data is by and large collected and processed manually, and thus its major use is found in budget deliberations. However, Thunder Bay is currently developing a sophisticated Management Information System into which performance measurement will be integrated. Upon such integration, Thunder Bay's performance measurement program can be expected to evolve into a dynamic tool for planning, control and evaluation.

D. Ottawa-Carleton, Ontario

The Regional Municipality of Ottawa-Carleton (the Region), located in Canada's national capital region, serves almost 550,000 people dwelling in eleven constituent municipalities. The Region commenced its performance measurement effort in mid-1978 and is currently proceeding with implementation.

With a mandate from Council, the Finance Department's budget section led the largely in-house development effort. Responsibility for the performance measurement program was recently transferred to the Region's Management Services Department. Like Thunder Bay, Ottawa-Carleton has found it necessary to rely heavily upon measurement examples drawn from other municipalities. However, the Region has been more explicit than Thunder Bay in its emphasis that formulation of goals and objectives should precede measurement selection. Performance measurements must be based upon departmental goals and objectives which must in turn be guided by policies and goals previously set by Council. Although the Management Services Department plays the central role of co-ordinating and implementing the program, the formulation of proper goals, objectives and performance measurements is considered a shared responsibility of Council, Management Services Department and operating departments. An example of the performance indicators of one of the Region's services is presented at the end of this Chapter.

The performance data is primarily used to evaluate budget submissions. All budgetary areas, then, are required to incorporate performance data into such submissions. Each area must state its objectives in measurable terms and must formulate an appropriate set of demand, workload, effectiveness and efficiency indicators. Performance measurement in Ottawa-Carleton has not yet developed beyond the budget support usage into a more frequent and systematic planning, control and evaluation system.

The Regional Municipality of Ottawa-Carleton was one of the very first municipalities in Canada to embark upon a performance measurement program and, as with any pioneer, it has accumulated experience valuable to others following the same trail. The Region found implementation to be somewhat slower than hoped for. The process could probably have been expedited to a greater degree if there had been a clearer enunciation and identification of strong and co-ordinated support to the system by top management. As well, formal training and orientation of participants, and the provision of analytical advice to operating managers did not occur until late in the process and this contributed to some delays. Ottawa-Carleton officials believe that such delays could have been avoided had the in-house implementation effort been augmented with experienced consulting assistance.

Despite these implementation problems the performance measurement program in the Region of Ottawa-Carleton remains conceptually sound, particularly in its emphasis on demand indicators and on the explicit formulation of goals and objectives.

REGIONAL MUNICIPALITY OF OTTAWA-CARLETON

FUNCTION	Environmental Services
PROGRAM	Water Supply
ACTIVITY	Filtration Plants

PERFORMANCE OBJECTIVE

To provide a continuous and adequate supply of potable water within Ministry of Environment guidelines.

PERFORMANCE INDICATORS

DEMAND

Raw water conditions:
average turbidity
average coliform count
average P.H. level
No. of commercial & residential units

WORKLOAD

Million gallons of water pumped
Tons of alum used
Tons of chlorine used
Tons of fluoride used

PRODUCTIVITY

Cost of treatment/million gallons
No. of gallons processed/day
Manhours/million gallons processed

EFFECTIVENESS

% of water samples meeting bacterial standards
% of water samples meeting P.H. standards
% of residential & Commercial units served
% of time water restrictions in effect

VII CONCLUSION

This publication has presented a practical guide for municipal officials interested in the measurement of the performance of services which they provide. It has discussed the basic concept of and need for municipal performance measurement. It has developed the concepts of effectiveness and efficiency and provided guidelines for the selection of a set of good performance measurements. It outlined how to organize a municipal performance measurement program. It went on to discuss the techniques of performance data collection and the uses of performance results. It presented examples of performance measurements for some particular services and it highlighted the experiences of four municipalities that have implemented performance measurement. We hope this will provide a good basis and encouragement to those progressive municipalities considering the adoption of performance measurement.

Is performance measurement in your future? For most municipalities the answer to that question is that the quantification of municipal performance is probably inevitable. Most municipalities will be unable to deal in the traditional way with the cost/revenue squeeze of the 1980's. Most will find that traditional revenue sources, transfer payments and new assessment, are shrinking in relation to the growth of old and new demands for increased expenditure. Municipalities, then, must become more effective and efficient and they will need quantitative information to identify and evaluate opportunities to do so.

Performance measurement can be postponed, of course, even if no new revenue from senior levels of governments or new assessment is forthcoming. The taxation rate can be raised, and because municipalities have both the legal capability to raise taxes and the monopolistic control of public service provision, they can compel citizens to "buy" municipal services. But for how long can citizens, faced by a similar cost/revenue squeeze themselves, be expected to acquiesce to increased taxes? Sooner or later they will demand that municipalities increase effectiveness and efficiency and municipalities will require the tools to do so. They will require performance measurement.

Early in this publication, the point was made that performance measurement is not the answer to all municipal problems, but rather is a technique for understanding problems and identifying opportunities for improvement. Early in this publication, too, the point was made that the quantification of the evaluation process was not a substitute for political judgement and professional experience, but rather was a complement to them. Municipal politicians and administrators today are facing serious decisions, decisions which must be made on the basis of the best available information. Performance measurement will improve that information. It is therefore neither a panacea nor a threat. It is simply good management.

SELECTED BIBLIOGRAPHY

1. Allen, John R. The Development of Annual Comparative Unit Cost Measurements for Municipal Services in Ontario: A Feasibility Study. Toronto: Ontario Ministry of Intergovernmental Affairs, 1978.
2. Beatty, Donald W. (ed). "Measuring Government Effectiveness", in Government Finance, November, 1973.
3. Bureau of Municipal Research. Cost Saving Innovations in Canadian Local Governments. Toronto: Bureau of Municipal Research, 1979.
4. City of Dallas. Working Procedures Manual I: Improving Productivity and Decision-Making Through the Use of Effectiveness Measures. Dallas, Texas: City of Dallas, 1979.
5. City of Portland, Bureau of Management and Budget. Performance Measurement: A Manual for Development, Implementation and Utilization. Portland, Oregon: City of Portland, 1978.
6. City of Sunnyvale. Article I: Performance Audit and Budget System. Sunnyvale, California: City of Sunnyvale, September, 1978.
7. Coli, Ed. "Sunnyvale's Performance Audit and Budget System" in Governmental Finance, December, 1980.
8. Downes, Donna Roman (ed.). "Performance Auditing", in Governmental Finance, November, 1976.
9. Fisk, Donald A., et al. How Effective Are Your Community Recreation Services? Washington D.C.: U.S. Department of the Interior, 1973.
10. Grant, Mary Margaret (ed). "Local Government Productivity", in Public Management, June, 1974.
11. Greiner, John M., et al. Monetary Incentives and Work Standards in Five Cities. Washington, D.C.: The Urban Institute, 1977.
12. Hatry, Harry P. "Performance Measurement Principles and Techniques" in Public Productivity Review, December 1980.
13. Hatry, Harry P., et al. Efficiency Measurement for Local Government Services - Some Initial Suggestions. Washington, D.C.: The Urban Institute, 1979.
14. Hatry, Harry P., et al. How Effective Area Your Community Services? Washington, D.C.: The Urban Institute, 1977.

15. Hatry, Harry P. and Fisk, Donald M. The Challenge of Productivity Diversity: Improving Local Government Productivity Measurement and Evaluation. Washington, D.C.: The National Commission on Productivity, 1972. (4 vols.)
16. Hayes, Frederick O'R. Productivity in Local Government. Lexington, Mass.: Lexington Books, 1977.
17. International City Management Association. Using Productivity Measurement: A Manager's Guide to More Effective Services. Washington, D.C.: International City Management Association, 1979.
18. Knight, Fred S. and Rancer, Michael D. Tried and Tested: Case Studies in Municipal Innovation. Washington, D.C.: International City Management Association, 1978.
19. MacDonald, V.N. and Lawton, P.J. Improving Management Performance: The Contribution of Productivity and Performance Measurement. Toronto: Queen's Printer, 1977.
20. National Center for Productivity and Quality of Working Life. Total Performance Management: Some Pointers for Action. Washington, D.C.: U.S. Government Printing Office, 1978.
21. National Commission on Productivity. Improving Police Productivity. Washington, D.C.: U.S. Government Printing Office, undated.
22. _____. Improving Productivity in Solid Waste Collection. Washington, D.C.: U.S. Government Printing Office, undated.
23. National Commission on Productivity and Work Quality. Employee Incentives to Improve State and Local Government Productivity. Washington, D.C.: U.S. Government Printing Office, 1975.
24. _____. Work Measurement for Better Management. Washington, D.C.: U.S. Government Printing Office, 1975.
25. Oatman, Donald. "It's Time for Productivity Accounting in Government", in Governmental Finance. November, 1979.
26. Peterson, John E., et al. (eds.) State and Local Government Financial Management: A Compendium of Current Research. Washington, D.C.: Government Finance Research Centre, 1978.

27. Regional Municipality of Ottawa-Carleton. Interim Catalogue of Performance Related Indicators. Ottawa: Regional Municipality of Ottawa-Carleton, 1979.
28. Rhode Island Department of Community Affairs. Performance Measurement and Cost Accounting for Smaller Local Governments. Providence, R. I.: The State of Rhode Island, 1978.
29. Schaenman, Philip S. et al. Procedures for Improving the Measurement of Local Fire Protection Effectiveness. Boston: The National Fire Protection Association, 1977.
30. Urban Institute. Performance Measurement: A Guide for Local Elected Officials. Washington, D. C.: The Urban Institute, 1980.
31. U.S. Department of Housing and Urban Development. Program Evaluation and Analysis: A Technical Guide for State and Local Governments. Washington, D. C.: U.S. Government Printing Office, 1979.
32. Washnis, George J.(ed) Productivity Improvement Handbook for State and Local Government. Toronto: John Wiley and Sons, 1980.
33. Webb, Kenneth and Hatry, Harry P. Obtaining Citizen Feedback: The Application of Citizen Surveys in Local Government. Washington, D. C.: The Urban Institute, 1973.
34. Wills, Chuck. "Performance Measurement Within a Municipal Context" in CGA Magazine, October 1980.



Ontario
Ministry of
Municipal Affairs
and Housing

Minister: Hon. Claude F. Bennett
Deputy Minister: R.M. Dillon, P. Eng.

12/M/9-S1/MA.2